



Microsoft®

Windows.net™

Server Family

Deploying the Windows Platform

**Wes Miller
Program Manager
Windows Core Technologies
Microsoft Corporation**

Agenda

- **Windows deployment tools**
- **Imaging vs. scripted**
- **Tools in depth**
- **Windows Product Activation**
- **Windows Deployment Website**
- **Summary**
- **Q&A**

Windows deployment tools

- **RIS - for bare metal setup and/or system image deployment**
- **Sysprep - for creating image-deployable systems**
- **RIPrep - RIS-capable version of Sysprep**
- **Unattend files -unattend.txt, Sysprep.inf, RIStdndrd.sif)**

Windows deployment tools

- **WinPE - for customized deployment solutions**
 - **Image-based deployment, for similar hardware**
 - **Unattend-based deployment, for dissimilar hardware**
- **Group Policy/SMS - distribution of new OS upgrades/updates**
- **Cmdlines.txt / GUIRunOnce - setup/post setup scripts**

Imaging vs. scripted

- **Image-based installs - file/disk based duplication**
 - **RIPrep (RIS “imaging”)**
 - **Sysprep (capture with xcopy or third party imaging software)**
- **Unattended installs - standard Windows setup, only automated**
 - **RISetup (RIStdndrd.sif)
~unattend.txt**
 - **Unattend.txt**

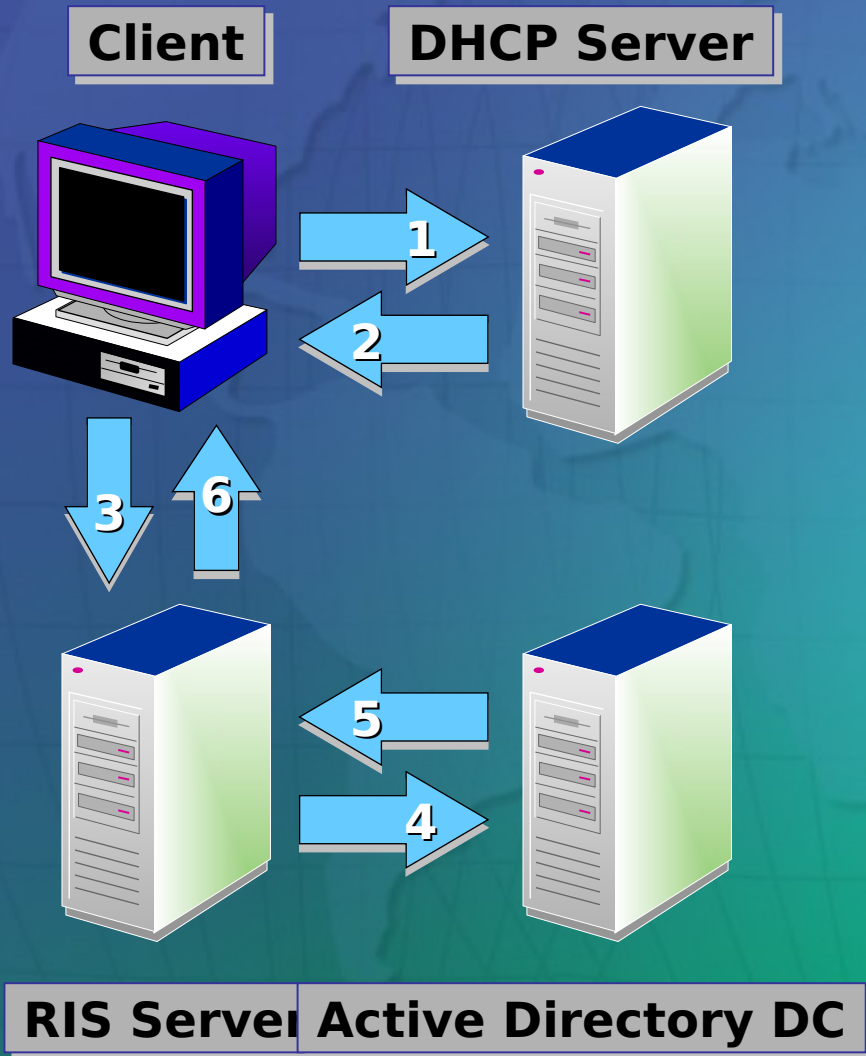
Comparative Uses

	RIS	Sysprep	Unattend	CD	WinPE	GP/SMS
Bare Metal						
Upgrades						
Pre-stage						
Dissimilar HW						
Image based						
Centralized install point						
OS + apps together						
2+ partitions						
Easy to reconfigure						
Requires						

RIS

- **Remote Installation Service**
 - **Allows for network initiated setup**
 - **Clean scripted install (RISetup)**
 - **Clean imaged install (RIPrep)**
 - **Uses PXE network cards to initiate setup with minimal user interaction**
 - **Boot floppy supports select additional network cards that are not PXE capable**

RIS - how it works



1 The client requests an IP address

2 The IP address is supplied by a DHCP server

3 The client contacts the RIS server

The RIS server checks

4 Active Directory to see if the client has been pre-staged

5 RIS responds or forwards the request to another RIS server

6 The RIS server sends startrom.com to the client - launches OSChoice

RIS - Enhancements

- **Support for deploying:**
 - **All versions of Windows 2000 (including Server and Advanced Server)**
 - **Windows XP Professional**
 - **All Windows .NET Servers**
 - **All 64-bit versions of Windows XP and Windows .NET***
- **Significant performance increase over Windows 2000 RIS Server**

*RISetup only, not RIPrep-based images

RIS - Enhancements

- **RIPrep image HAL filtering**
 - **User only offered HAL-compatible RIPrep images**
 - **Lowers support calls from incompatible install failures**
- **AutoEnter functionality in OSChoice**
- **Specify SIF file and/or startrom.com for each machine in Active Directory**

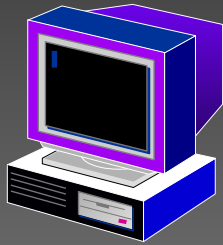
RIS - Security

- **Security enhancements**
 - **Disable local admin account on domain join**
 - **AdminPW screen**
 - **Secure domain join**
 - **Administrator password encryption**

RIS

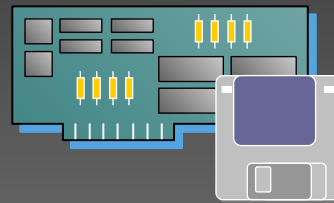
Client system requirements

Computer



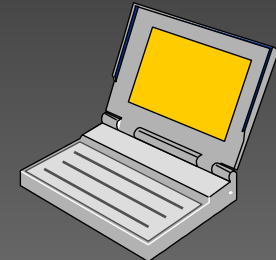
PC that meets PXE
1.0 or 2.0 Specifications

Network Adapter



Network adapter that
supports PXE or is
supported by the RIS
Boot Floppy (RBF)

Mobile Systems



PXE aware:

- docking stations
- PXE CardBus NIC
- Internal PXE NIC
- Mini-PCI NIC
(may require BIOS support)

RIS Clients must also meet minimum Windows XP/Windows .NET hardware requirements.

NOT supported: USB, 1394, USB 2.0 NICs, CardBus NIC via Boot Floppy

RIS Demo

demo

Wes Miller
Program Manager
Windows Core
Technology

Comparative Uses

	RIS	Sysprep	Unattend	CD	WinPE	GP/SMS
Bare Metal	✓					
Upgrades						
Pre-stage	✓					
Dissimilar HW	✓*					
Image based	✓*					
Centralized install point	✓					
OS + apps together	✓*					
2+ partitions						
Easy to reconfigure	✓*					
Remote	✓					

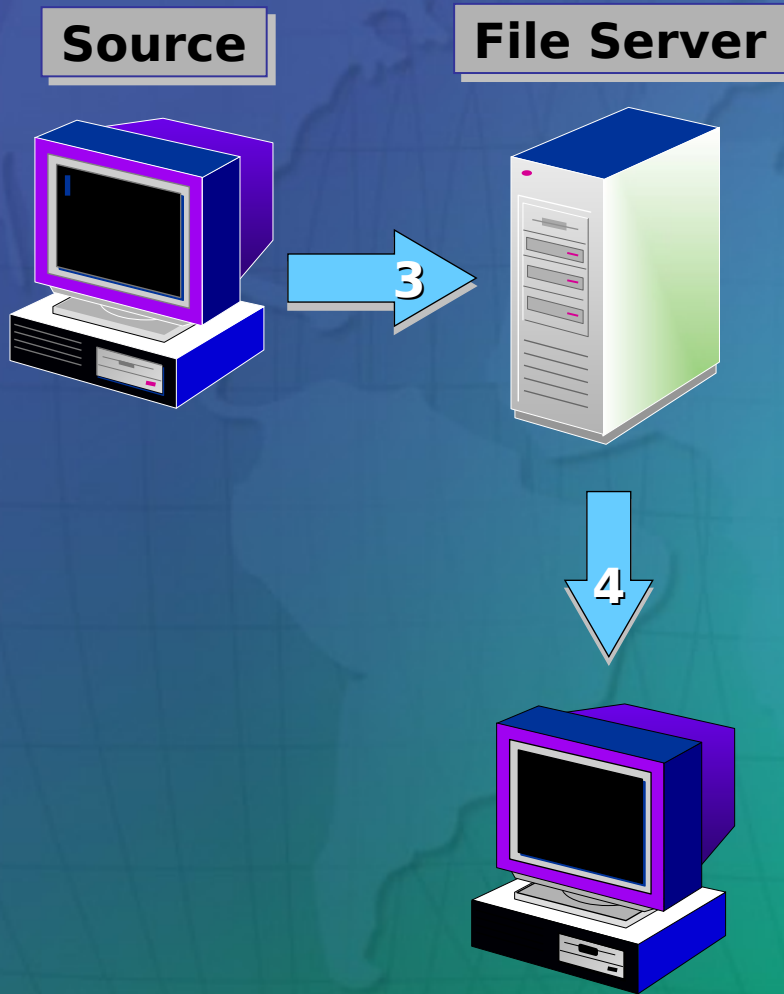
Sysprep & Imaging

- **System Preparation tool**
 - **Prepares a reference system for disk-based duplication (Xcopy or third party imaging tool)**
 - **Similar to RIPrep, used for RIS imaging**
 - **Requires relatively similar hardware**
 - **Runs mini-setup or Windows Welcome rather than full setup**

Sysprep & Imaging - Enhancements

- **Allows for updated or out of box drivers to be picked up by image at install time when PnP occurs (-factory switch)**
- **Can image Windows .NET Servers running IIS**
- **Winbom.ini Allows gathering of files (e.g. drivers, apps) from network**
- **-PnP no longer necessary (saves time)**

Sysprep - how it works



- 1 Source machine is prepared as desired - Windows and applications
- 2 Sysprep is run on the machine, which then powers off
- 3 Using WinPE or an imaging tool, the image is stored (here, to a server)
- 4 New machine is booted using WinPE or an imaging tool, image is installed
- 5 New machine is powered on, mini-setup runs
- 6 New machine is powered off & ready to redistribute
- 7 Steps 4-6 repeated as needed for each new machine desired

Comparative Uses

	RIS	Sysprep	Unattend	CD	WinPE	GP/SMS
Bare Metal	✓	✓				
Upgrades						
Pre-stage	✓					
Dissimilar HW	✓*					
Image based	✓*	✓				
Centralized install point	✓					
OS + apps together	✓*	✓				
2+ partitions						
Easy to reconfigure	✓*					
Remote	✓					

Unattend & Setup Manager

- Setup Manager creates & modifies unattended setup answer files (unattend, Sysprep, RISetup)
- Can be found with other deployment tools and guides in deploy.cab on the product CD

Unattend & Setup Manager -

Enhancements
Local admin password can be encrypted

- **Setup Manager:**
 - Improved interface
 - New page helps configure commonly used Optional Components
- Improved .chm file on the product CD for unattended setup and deployment

Comparative Uses

	RIS	Sysprep	Unattended	CD	WinPE	GP/SMS
Bare Metal	✓	✓	✓			
Upgrades			✓*			
Pre-stage	✓					
Dissimilar HW	✓*		✓			
Image based	✓*	✓				
Centralized install point	✓		✓*			
OS + apps together	✓*	✓				
2+ partitions						
Easy to reconfigure	✓*		✓			

Custom CD

- **Tools to create custom bootable ISO image included in WinPE for Corporations**
- **Allows for custom:**
 - **Drivers**
 - **Unattend file**
 - **Applications/scripts to run via GUIRunOnce or Cmdlines.txt**

Comparative Uses

	RIS	Sysprep	Unattended	CD	WinPE	GP/SMS
Bare Metal	✓	✓	✓	✓		
Upgrades			✓*	✓*		
Pre-stage	✓					
Dissimilar HW	✓*		✓	✓		
Image based	✓*	✓				
Centralized install point	✓		✓*			
OS + apps together	✓*	✓				
2+ partitions						
Easy to reconfigure	✓*		✓	✓		

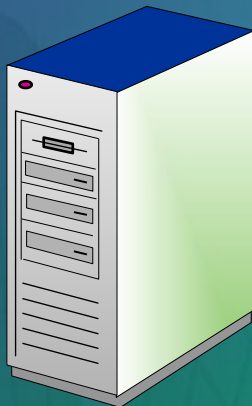
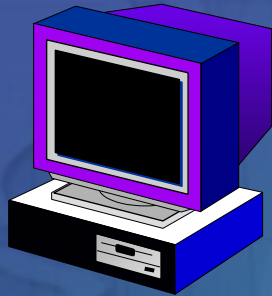
Windows PE

- **Windows XP, minimal Win32 API set**
 - **32 and 64-bit versions**
- **Replaces DOS for preinstalls**
 - **Use winnt32.exe instead of winnt.exe**
- **Scriptable (batch files)**
- **Customizable via Winbom.ini**
- **Can configure additional Mass Storage and NIC drivers**

Windows PE

- **Hardware independent**
- **TCP/IP Networking support**
- **Scriptable Hard Disk Drive configuration tools**
 - **Diskpart**
 - **Format**
 - **All 32-bit (rapid partitioning and formatting)**
- **Boot via PXE (RIS), HDD, CD, DVD**

WinPE - how it works



- 1 Machine is booted with WinPE (CD, DVD, PXE)
- 2 Disk is prepared via diskpart (scripted)
- 3 Disk is formatted via format (scripted)
- 4 Connect to any needed shares for install points or image shares
- 5 Image is applied (Xcopy, 3rd party imaging tools), or winnt32 is launched

Windows PE on DVD

demo

**Wes Miller
Program Manager
Windows Core
Technology**

Comparative Uses

	RIS	Sysprep	Unattended	CD	WinPE	GP/SMS
Bare Metal	✓	✓	✓	✓	✓	
Upgrades			✓*	✓*		
Pre-stage	✓					
Dissimilar HW	✓*		✓	✓	✓*	
Image based	✓*	✓			✓*	
Centralized install point	✓		✓*		✓*	
OS + apps together	✓*	✓			✓*	
2+ partitions					✓	
Easy to reconfigure	✓*		✓	✓*	✓*	

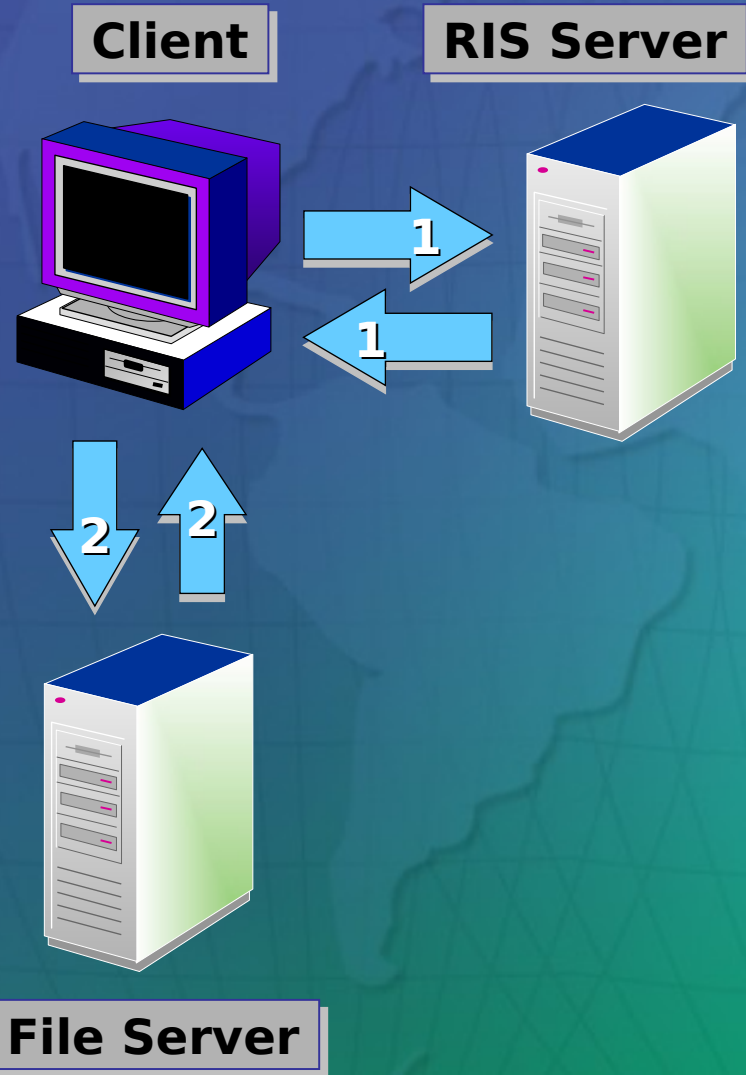
Group Policy & SMS

- **Can be used to upgrade Windows XP & Windows .NET in existing AD/SMS infrastructure**
- **Update OS to future versions, or add hotfixes, SPs**
- **Using SMS, you can verify that the update to XP occurred successfully**
- **Use SMS to inventory, check for compatibility before upgrade**

Comparative Uses

	RIS	Sysprep	Unattended	CD	WinPE	GP/SMS
Bare Metal	✓	✓	✓	✓	✓	
Upgrades			✓*	✓*		✓
Pre-stage	✓					✓
Dissimilar HW	✓*		✓	✓	✓*	✓
Image based	✓*	✓			✓*	
Centralized install point	✓		✓*		✓*	✓
OS + apps together	✓*	✓			✓*	✓
2+ partitions					✓	
Easy to reconfigure	✓*		✓	✓	✓*	✓

Multiple tools together



- 1 Client launches WinPE via RIS
- 2 Disk is prepared (diskpart, format), and image is applied (Xcopy, etc)
- 3 Sysprep mini-setup completes, using a sysprep.inf (unattend file)
- 4 Machine uses autologon, and runs GUIRunOnce to install SQL Server

Deployment factors

- **Be aware of how the following can affect deployment:**
 - **Geography & Time zones**
 - **Bandwidth (or lack) to sites**
 - **Hardware homogeneity and lifespan**
 - **Existing hardware (PC/router/network) infrastructure**
 - **Existing software (third party system mgmt software, etc)**

64-Bit deployment

- **RIS**
 - 64-bit XP SP1 and Windows .NET supported as RIS clients, using RISetup
 - RIPrep is *not* supported on 64-bit systems
 - 64-bit Windows .NET Servers can serve as RIS Servers
 - Sysprep, unattended setup all fully functional on the 64-bit platform
 - WinPE available for 64-bit systems

Windows Product Activation

- **Volume Licensed Media**
 - **No activation required**
 - **Common product key across installs**
 - **Planned to be encryptable for SP1/.NET Server RTM**
- **Retail Media**
 - **Activation required**
 - **Unique product key per install**
 - **Can be scripted using WMI & WSH**

Windows Deployment Website

- **What's Planned:**
 - **Setup roadmap**
 - **What do I use? When? Why?**
 - **RIS tools**
 - **Test Server auto creation script (unattended, dcpromo, RISetup)**
 - **Pre-staging, managed PC removal, MAO modifier to add/remove/create managed PCs from non-managed ones**
 - **Sysprep & Deployment tools**
 - **Additional docs & tools**

Summary

- **Use the tool that works best for the needs at hand**
- **There is no predetermined “right solution”**
- **Devise a deployment strategy that works for you**
- **We’ve made huge improvements in Windows XP and Windows .NET for deployment**
- **WinPE can help unblock many deployment issues**

Q&A / Resources

- **Deploy.cab on Windows CDs**
- **Deploying Windows 2000 with Support Tools (ISBN: 1-928994-12-1)**
- **Windows 2000 Magazine RIS series**
- **TechNet**
- **Help and Support Knowledge Base**

Microsoft®